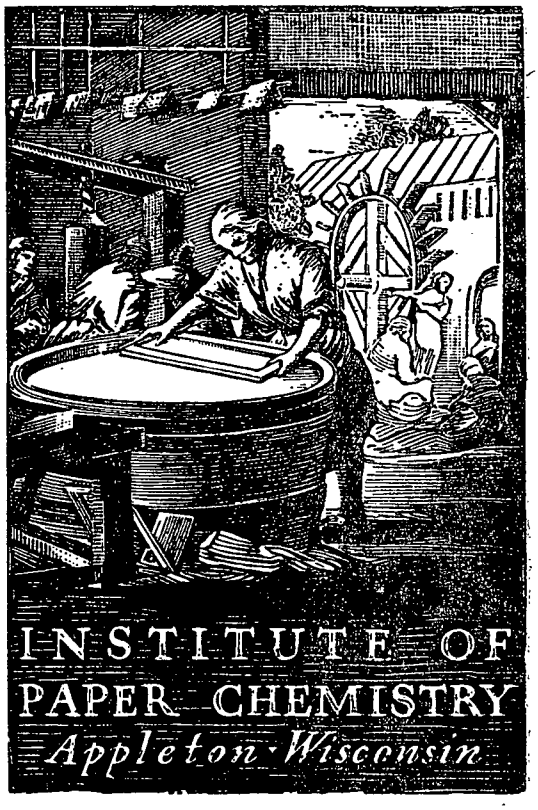

CONTINUOUS BASELINE STUDY

Project 1108-13

Report 167

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

March 1, 1961

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

SUMMARY

The objective of the continuous baseline study on linerboard is twofold. The first objective is to provide an indication of the quality of the 42-lb. fourdrinier kraft linerboard being produced by each of the participating mills and by the industry as a whole. The second objective is to provide a procedure whereby the mills have the opportunity to compare their test results with those obtained at the Institute on similar materials, thus providing a convenient system of instrument verification. The first objective is implemented by the weekly sampling of the product of each machine manufacturing 42-lb. kraft linerboard and submitting these weekly samples to The Institute of Paper Chemistry where they are evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The second objective of the continuous baseline study--namely, to provide a convenient system of instrument verification--is achieved by the testing of analogous samples by the mill and the Institute. The mill data are sent to the Institute, and a comparison of Institute and mill test results is included in the monthly reports. In addition to fulfilling the two prime objectives described above, the baseline study is accumulating an invaluable ever-growing reserve of background information essential for the intelligent evaluation of specifications of any kind.

During the month of February, one hundred and two sample lots of 42-lb. fourdrinier kraft linerboard representing the production of sixteen mills were evaluated at The Institute of Paper Chemistry. Shown below are the maximum and minimum current mill average for each test (the current mill

average is the average of the results obtained on all sample lots of linerboard submitted from a given mill during the current period); also shown for each test is the current F.K.I. average which is determined by averaging the current mill averages and is indicative of the test level being maintained by the industry as a whole to the degree that the industry is represented by the participating mills:

	Maximum Current Mill Av.	Minimum Current Mill Av.	Current F.K.I. Av.
Basis weight, lb.	44.1	42.8	43.3
Caliper, pt.	13.6	11.8	12.6
Bursting strength, p.s.i. gage	118	101	110
Machine direction Elmendorf Tear, g./sheet	358	285	323
Cross-machine direction Elmendorf tear, g./sheet	399	341	366

As mentioned previously, the study provides a procedure whereby the mills have the opportunity to compare their test results with those obtained on corresponding sample lots of linerboard at the Institute so that a convenient system of instrument verification is readily available to all participants. A summary of the agreement obtained in the comparisons of Institute and mill test results for the current period is shown below. The tabulated data show the number of mills (and the percentage of all mills which this summer represents) whose average test results for the month of February fall within the designated percentages from the average test results obtained at the Institute on corresponding materials.

Average Percentage Difference Between Institute and Mill Test Results

	±0.5	±1	±2	±3	±4	±5	±7.5	±10	±17
Basis weight									
Number of mills	4	15	16						
Percentage of all mills	25.0	93.8	100.0						
Caliper									
Number of mills	3	4	10	15	15	16			
Percentage of all mills	18.8	25.0	62.5	93.8	93.8	100.0			
Bursting strength									
Number of mills	1	3	7	9	12	14	14	15	16
Percentage of all mills	6.2	18.8	43.8	56.2	75.0	87.5	87.5	93.8	100.0
Tearing strength, in									
Number of mills	0	3	4	7	7	7	10	11	15
Percentage of all mills	0.0	20.0	26.7	46.7	46.7	46.7	66.7	73.3	100.0
Tearing strength, across									
Number of mills	4	5	6	7	8	8	10	13	15
Percentage of all mills	26.7	33.3	40.0	46.7	53.3	53.3	66.7	86.7	100.0

INTRODUCTION

The objective of the continuous baseline study on linerboard is twofold. One objective is to provide an indication of the quality of the 42-lb. fourdrinier kraft linerboard being produced by each of the participating mills and by the industry as a whole. Another objective is to provide a procedure whereby the mills have the opportunity to compare their test results with those obtained at the Institute on similar materials, thus providing a convenient system of instrument verification. The first objective mentioned above is implemented by the weekly sampling of the product of each machine manufacturing 42-lb. kraft linerboard and submitting these weekly samples to The Institute of Paper Chemistry where they are evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The second objective of the continuous baseline study--namely, to provide a convenient system of instrument verification--is achieved by the testing of analogous samples by the mill and the Institute. The mill data are sent to the Institute, and a comparison of Institute and mill test results is included in the monthly reports. In addition to fulfilling the two prime objectives which have been described, the baseline study is accumulating an invaluable ever-growing reserve of background information essential for the intelligent evaluation of specifications of any kind.

The dual objectives of the continuous baseline study on linerboard have been described in the preceding paragraph. The remainder of the report presents the test results for the linerboard samples which were evaluated during the month of February. In line with the dual nature of the study,

the presentation is divided into two parts. Part I presents the results obtained at The Institute of Paper Chemistry, and Part II presents a comparison of results obtained at the Institute with those obtained at the mills. It should be noted that the same code letters are not used to identify the same participants in these reports from month to month. Each participant is privately advised of his own code. Attention is directed to the fact that the bursting strength results presented in these reports have been obtained, beginning in April, 1960, with the "new" diaphragm. By "new" diaphragm is meant the composition and style (fillet filled in) introduced by B. F. Perkins and Son, Inc. The same diaphragm distension characteristics, namely, 40-45 p.s.i. at 1.8 cm. distension, were used.

PART I: PRESENTATION AND DISCUSSION OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY

During the month of February, one hundred and two different sample lots were evaluated atThe Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The current F.K.I. average represents the average of the current mill averages, whereas the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. Hence, in the case of the current report, the cumulative F.K.I. average covers the period from February 1, 1960, to January 31, 1961. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.3 lb., and the cumulative F.K.I. average basis weight is 43.6 lb. Hence, the F.K.I. index for basis weight determined in per cent as previously described is 99.3 and indicates that the current F.K.I. average basis weight is lower than the cumulative F.K.I. average.

TABLE I

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL

Mill Code	Number
A	8
B	6
C	4
D	2
E	6
F	3
G	8
H	2
I	8
J	8
K	7
L	9
M	0
N	8
O	8
P	0
Q	0
S	9
T	6
Total	102

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--FEBRUARY 1 THROUGH FEBRUARY 28, 1961

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	43.8	12.4	112	285	348
B	43.2	13.2	105	317	358
C	43.7	12.2	115	340	355
D	43.2	12.9	101	335	373
E	42.8	12.6	114	308	348
F	43.0	11.9	118	317	341
G	43.7	12.6	110	307	365
H	44.1	11.8	110	324	380
I	43.4	12.9	111	358	395
J	43.2	13.6	110	315	352
K	42.9	12.8	112	313	389
L	43.4	12.8	111	327	362
M	No samples submitted.				
N	43.4	12.8	117	328	357
O	43.0	12.5	110	305	353
P	No samples submitted.				
Q	No samples submitted.				
S	43.0	11.9	109	353	399
T	43.4	12.8	102	337	387
Current FKI Average:	43.3	12.6	110	323	366
Cumulative FKI Average:	43.6	12.7	110	332	374
FKI Index, %	99.3	99.2	100.0	97.3	97.9

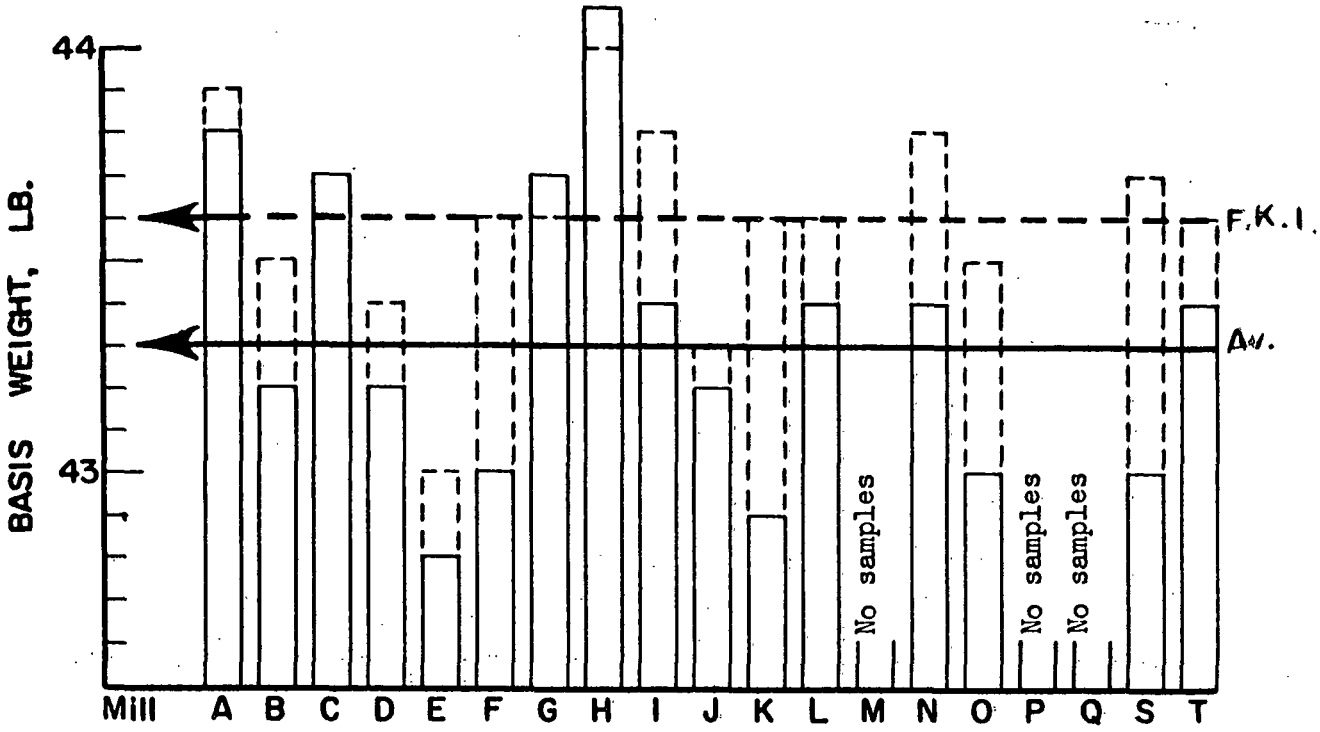

Figure 1. Comparison of Basis Weight Results for February, 1961

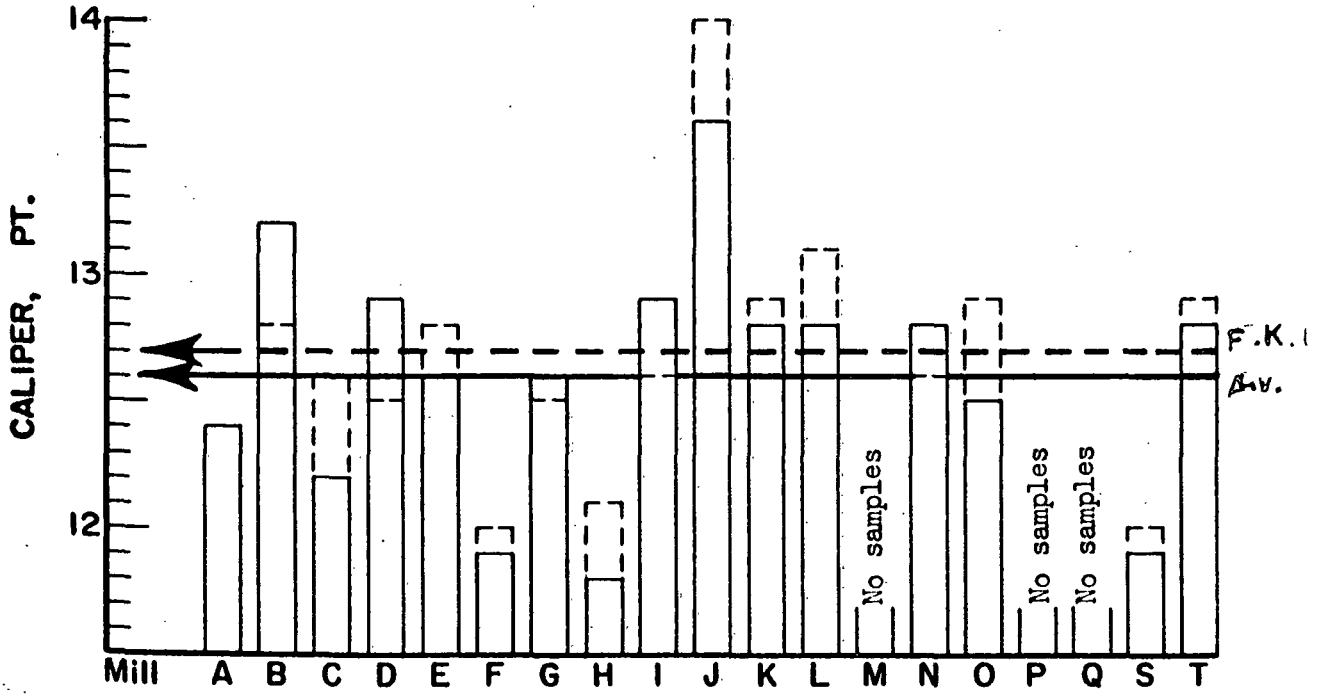

Figure 2. Comparison of Caliper Results for February, 1961

——— Current mill average

- - - - - Cumulative mill average

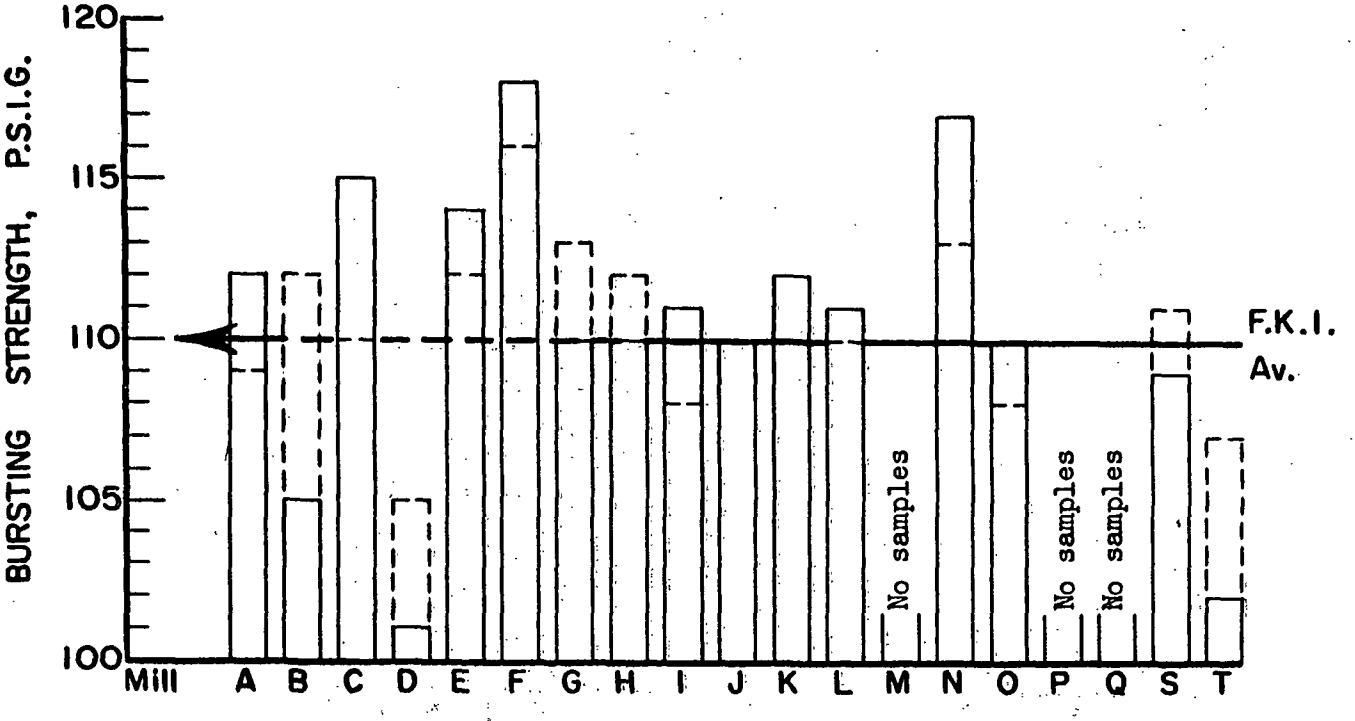

Figure 3. Comparison of Bursting Strength Results for February, 1961

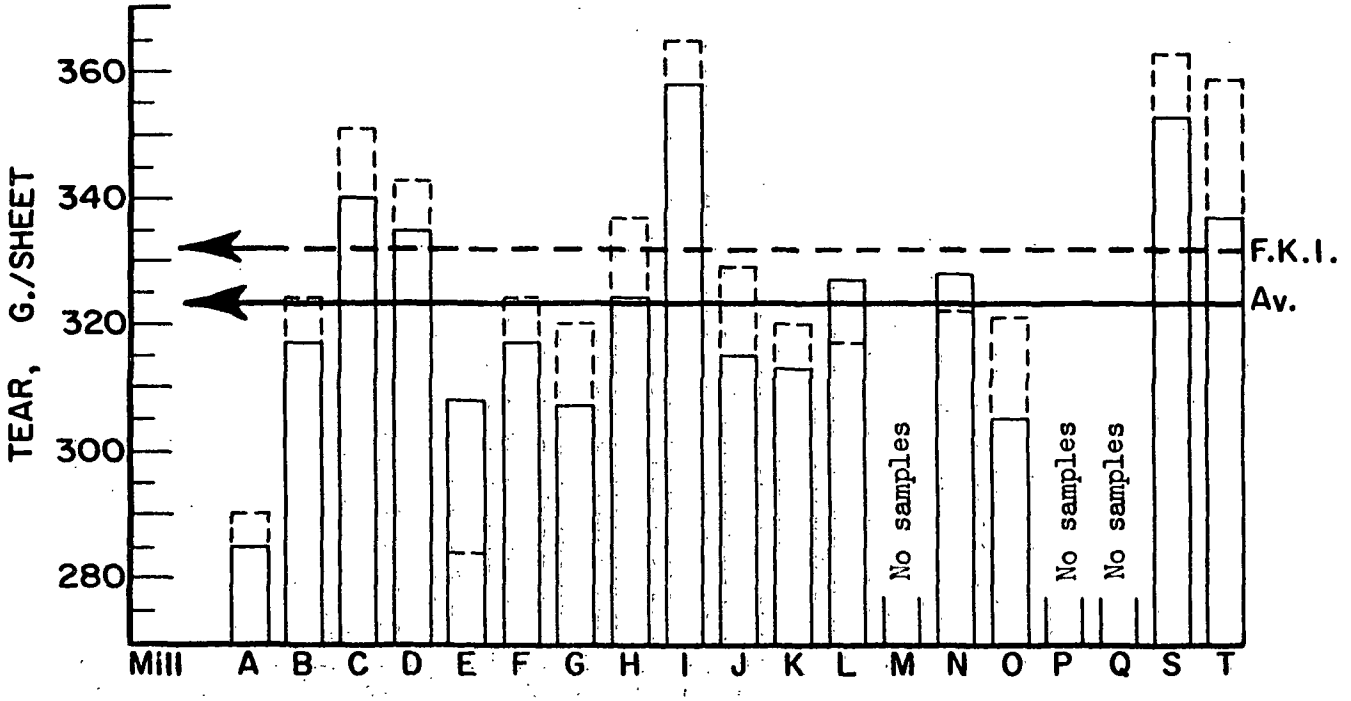

Figure 4. Comparison of Machine-Direction Tear Results for February, 1961

——— Current mill average

- - - - - Cumulative mill average

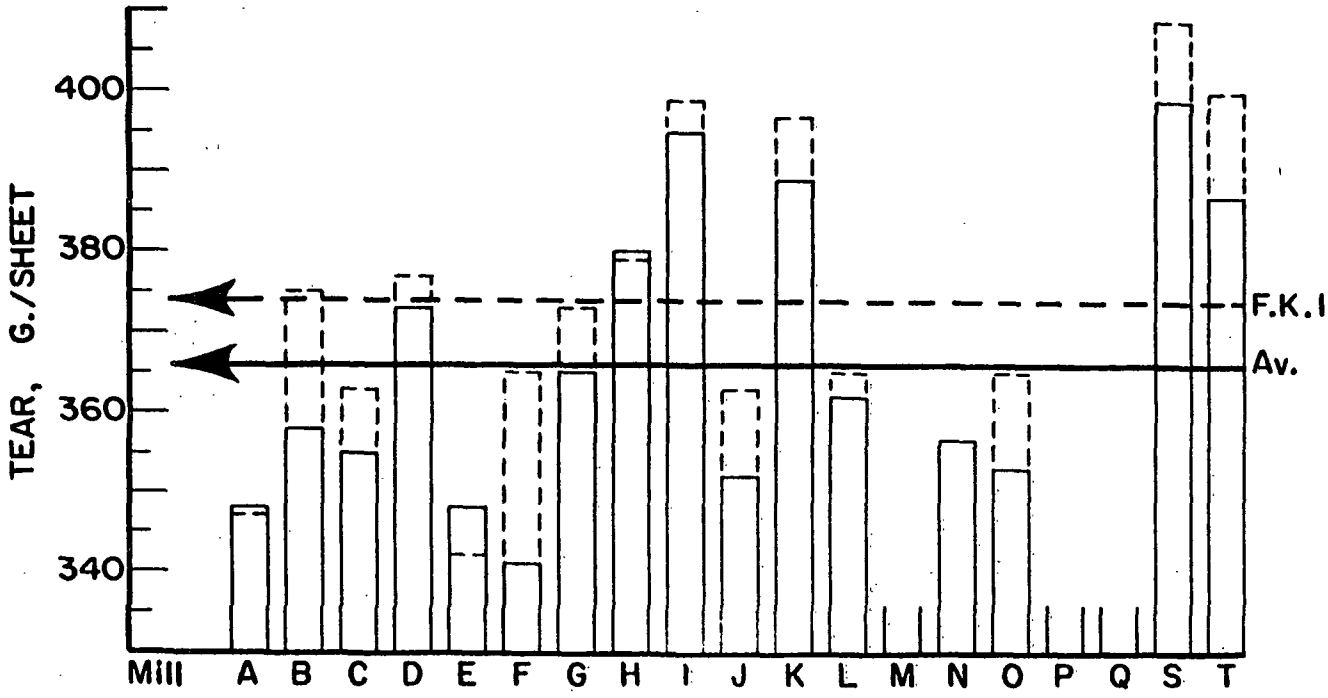

Figure 5. Comparison of Cross-Machine Direction Tear Results for February, 1961

——— Current machine average

- - - - - Cumulative machine average

A comparison of the current mill averages in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill H had the highest average basis weight of 44.1 lb., which was approximately 5.0% higher than the 42-lb. specification. The lowest average basis weight of 42.8 lb. was associated with Mill E and was 1.9% higher than the 42-lb. specification. The amount by which the mills vary from the 42-lb. specification is shown in Table II-A. A comparison of the current F.K.I. basis weight average for this period with that for the previous period shows that basis weight has decreased slightly from 43.5 lb. to 43.3 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 11.8 points for Mill H to a high of 13.6 points for Mill J. The current F.K.I. caliper average was 12.6 points, which was slightly lower than the cumulative F.K.I. average of 12.7 points.

The average bursting strength values given in Table II for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for bursting strength ranged from a low of 101 for Mill D to a high of 118 for Mill F. The current F.K.I. bursting strength average was 110 p.s.i. gage, which was the same as the cumulative F.K.I. average.

The Elmendorf tear results shown in Table II for the various mills are presented graphically in Figures 4 and 5. From these presentations it may be observed that Mill I had the highest machine direction

TABLE II-A

PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT

SPECIFICATION

Mill Code	Per Cent
A	+4.3
B	+2.9
C	+4.0
D	+2.9
E	+1.9
F	+2.4
G	+4.0
H	+5.0
I	+3.3
J	+2.9
K	+2.1
L	+3.3
M	--
N	+3.3
O	+2.4
P	--
Q	--
S	+2.4
T	+3.3

tear average of 358 g./sheet, and Mill A had the lowest average of 285 g./sheet. It may be further noted that the highest cross-machine direction tear average of 399 g./sheet was associated with Mill S and that the lowest average of 341 g./sheet was associated with Mill F. It may be observed also in Table II and Figures 4 and 5 that the current F.K.I. averages for machine direction and cross-machine direction Elmendorf tear were slightly lower than their cumulative F.K.I. averages.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. average for bursting strength is the same as its cumulative F.K.I. average and the current F.K.I. averages for basis weight, caliper, machine direction, and cross-machine direction Elmendorf tear are lower than their respective cumulative F.K.I. averages.

In order to compare the variation within a given mill, the test results for the participating mills have been tabulated in Tables III to XXI alphabetically. In addition to the current and cumulative average, a mill factor and mill index are given for each mill. The current mill average represents the average test result obtained for all samples evaluated from a given mill during the current period. The cumulative mill average for each test, on the other hand, represents the average of the current mill averages for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that information is included about the sheet finish. A review of the tables for the mills which supplied this information indicates that some kind of water finish is being used by all.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961

TABLE III

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188626	W.F.	2/ 2/61	1/17/61	1	44.2	42.0	43.2	13.0	11.8	12.2	130	87	113	288	232	259	456	304	347[a]
188627	W.F.	2/ 2/61	1/20/61	1	45.2	42.6	44.0	13.1	11.4	12.3	135	95	112	304	264	278[a]	408	320	348[a]
188630	W.F.	2/ 6/61	1/23/61	1	45.2	43.0	44.1	13.0	11.9	12.5	133	94	113	328	272	291	392	304	348[a]
188762	W.F.	2/10/61	1/28/61	1	46.0	42.0	44.6	12.8	11.7	12.2	138	98	115	360	248	300	352	312	343[a]
188799	W.F.	2/13/61	1/31/61	1	46.0	43.8	44.4	13.5	12.5	12.9	122	90	108	344	256	291	392	320	352[a]
188841	W.F.	2/15/61	2/ 3/61	1	44.2	41.8	43.1	13.9	12.0	12.5	126	88	110	320	240	284[a]	368	312	336[a]
188885	W.F.	2/21/61	2/ 8/61	1	45.0	43.0	44.0	13.0	12.0	12.4	123	86	112	328	256	291[a]	416	320	367[a]
188886	W.F.	2/21/61	2/15/61	1	44.2	41.6	43.3	13.0	12.0	12.3	124	96	111	320	248	283[a]	392	312	340[a]
Current Mill Average:							43.8			12.4			112			285			348
Cumulative Mill Average:							43.9			12.4			109			290			347
Mill Factor, %							99.8			100.0			102.8			98.3			100.3
Mill Index, %							100.5			97.6			101.8			85.8			93.0

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE IV

MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188806	----	2/14/61	1/ 1/61	1	44.6	42.0	43.5	14.2	13.0	13.5	132	94	115	368	272	309	432	344	386[a]
188807	----	2/14/61	1/14/61	1	43.6	42.2	43.1	13.8	12.8	13.1	128	79	102	384	256	311	376	304	345[a]
188808	----	2/14/61	1/21/61	1	44.2	42.2	43.4	14.2	13.0	13.6	134	90	110	384	264	319	384	320	347[a]
188809	----	2/14/61	1/23/61	1	43.8	42.0	42.9	13.9	12.8	13.2	115	69	96	384	304	341	408	328	360[a]
188889	----	2/21/61	2/ 2/61	1	44.4	42.4	43.2	13.4	12.4	13.1	126	83	104	352	256	314[a]	400	320	359[a]
188890	----	2/21/61	2/ 5/61	1	44.2	42.4	43.3	13.6	11.9	12.8	128	72	104	352	280	310	384	296	350[a]
Current Mill Average:							43.2			13.2			105			317			358
Cumulative Mill Average:							43.5			12.8			112			324			375
Mill Factor, %							99.3			103.1			93.8			97.8			95.5
Mill Index, %							99.1			103.9			95.5			95.5			95.7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188620	W.F.	2/ 1/61	1/17/61	-	44.6	42.2	43.7	13.0	11.5	12.2	125	80	111	408	320	351[a]	392	336	356[a]
188621	W.F.	2/ 1/61	1/17/61	-	44.6	43.0	43.9	13.0	12.0	12.4	133	90	111	400	296	335[a]	360	280	338[a]
188887	W.F.	2/21/61	1/31/61	-	44.6	43.2	43.8	12.6	12.0	12.2	137	97	114	432	304	349[a]	408	344	372[a]
188888	W.F.	2/21/61	2/ 5/61	-	44.0	42.2	43.2	12.2	11.8	12.0	141	110	125	360	288	325[a]	384	312	353[a]
Current Mill Average:							43.7			12.2			115			340			355
Cumulative Mill Average:							43.7			12.6			110			351			363
Mill Factor, %							100.0			96.8			104.5			96.9			97.8
Mill Index, %							100.2			96.1			104.5			102.4			94.9

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188629	S.F.	2/ 6/61	1/17/61	7	44.2	42.0	43.2	13.5	12.5	13.0	122	80	99	384	312	345[a]	400	336	365[a]
188892	S.F.	2/21/61	1/31/61	7	43.8	42.2	43.1	13.1	12.2	12.9	127	85	103	352	296	324	448	336	380[a]
Current Mill Average:							43.2			12.9			101			335			373
Cumulative Mill Average:							43.4			12.5			105			343			377
Mill Factor, %							99.5			103.2			96.2			97.7			98.9
Mill Index, %							99.1			101.6			91.8			100.9			99.7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE VII

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188800	W.F.	2/13/61	1/ 4/61	1	44.0	42.2	42.8	13.9	12.6	13.0	138	89	114	328	264	283[a]	360	304	343[a]
188801	W.F.	2/13/61	1/ 6/61	1	43.8	42.0	42.9	13.2	12.4	12.9	130	94	117	320	240	275[a]	352	312	341[a]
188802	W.F.	2/13/61	1/ 9/61	1	43.2	41.8	42.4	12.8	12.0	12.3	126	95	111	392	272	315[a]	392	288	323[a]
188803	W.F.	2/13/61	1/12/61	1	42.6	42.0	42.2	12.8	12.0	12.3	122	71	106	384	256	321[a]	352	288	318[a]
188804	W.F.	2/13/61	1/17/61	1	44.0	42.4	43.0	12.5	12.0	12.1	134	91	119	344	272	307[a]	448	320	368[a]
188805	W.F.	2/13/61	1/21/61	1	44.0	42.4	43.2	13.2	12.4	12.9	129	98	115	384	304	346[a]	424	352	394[a]
Current Mill Average:							42.8			12.6			114			308			348
Cumulative Mill Average:							43.0			12.8			112			284			342
Mill Factor, %							99.5			98.4			101.8			108.5			101.8
Mill Index, %							98.2			99.2			103.6			92.8			93.0

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE VIII

MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188624	W.F.	2/ 2/61	1/22/61	2	43.4	42.2	42.8	12.0	11.3	11.8	137	99	119	328	264	296	384	320	348[a]
188625	W.F.	2/ 2/61	1/23/61	2	43.0	42.0	42.4	12.0	11.3	11.7	130	104	118	360	272	329[a]	360	280	325[a]
188874	W.F.	2/20/61	2/12/61	2	44.2	42.4	43.7	12.8	12.0	12.3	129	86	116	352	296	325[a]	368	328	350[a]
Current Mill Average:							43.0			11.9			118			317			341
Cumulative Mill Average:							43.6			12.0			116			324			365
Mill Factor, %							98.6			99.2			101.7			97.8			93.4
Mill Index, %							98.6			93.7			107.3			95.5			91.2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188765	W.F.	2/10/61	1/18/61	2	45.0	43.8	44.2	13.1	12.2	12.8	134	95	114	368	272	321	424	344	382[a]
188766	W.F.	2/10/61	1/18/61	2	45.0	43.8	44.1	12.5	11.8	12.2	124	85	102	336	272	296	384	320	357[a]
188767	W.F.	2/10/61	1/24/61	2	44.2	43.4	43.9	12.7	12.0	12.3	127	96	113	384	288	323[a]	400	320	369[a]
188768	W.F.	2/10/61	1/24/61	2	44.4	44.0	44.1	12.8	12.2	12.5	136	101	116	352	312	330	456	352	395[a]
188769	W.F.	2/10/61	1/18/61[b]	2	44.4	43.6	44.0	12.8	11.8	12.3	148	96	113	360	256	309	416	352	337[a]
188770	W.F.	2/10/61	1/18/61[b]	2	44.0	43.2	43.6	13.4	12.2	12.8	127	88	105	368	224	303	416	320	349[a]
188771	W.F.	2/10/61	1/31/61	2	43.4	42.2	42.7	13.7	12.7	13.0	123	79	106	328	224	287	384	320	349[a]
188772	W.F.	2/10/61	1/31/61	2	43.6	42.2	42.9	13.4	12.6	13.0	130	90	110	320	216	289	384	304	345[a]
Current Mill Average:							43.7			12.6			110			307			365
Cumulative Mill Average:							43.6			12.5			113			320			373
Mill Factor, %							100.2			100.8			97.3			95.9			97.9
Mill Index, %							100.2			99.2			100.0			92.5			97.6

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

[b]This date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as January 20, 1961.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188938	W.F.	2/24/61	2/ 8/61	3	44.8	43.8	44.1	12.1	11.4	11.7	120	88	105	400	280	349[a]	480	368	417[a]
188939	W.F.	2/24/61	2/12/61	3	44.4	43.6	44.0	12.0	11.2	11.8	129	94	114	336	240	298	368	304	342[a]
Current Mill Average:							44.1			11.8			110			324			380
Cumulative Mill Average:							44.0			12.1			112			337			379
Mill Factor, %							100.2			97.5			98.2			96.1			100.3
Mill Index, %							101.1			92.9			100.0			97.6			101.6

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XI

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188634	W.F.	2/ 6/61	1/21/61	-	44.0	42.0	43.3	14.1	12.4	13.3	135	90	111	448	296	377[a]	472	360	401[a]
188635	W.F.	2/ 6/61	1/21/61	-	44.4	41.6	42.8	13.8	12.8	13.2	125	90	108	400	312	362[a]	480	336	414[a]
188639	W.F.	2/ 7/61	1/21/61	-	44.4	43.2	43.6	13.8	13.0	13.3	135	91	112	432	328	357[a]	392	352	375[a]
188640	W.F.	2/ 7/61	1/21/61	-	44.6	43.4	43.8	14.2	12.8	13.3	134	98	114	392	288	354[a]	408	360	388[a]
188641	W.F.	2/ 7/61	1/23/61	-	43.8	41.8	43.0	13.3	12.1	12.7	118	85	102	392	296	343[a]	440	352	394[a]
188882	W.F.	2/20/61	1/27/61	-	44.8	42.2	43.5	13.1	12.1	12.6	128	89	113	384	344	368[a]	464	368	412[a]
188883	W.F.	2/20/61	1/27/61	-	44.8	43.2	43.9	12.9	11.5	12.2	150	94	120	368	272	341	424	320	376[a]
188884	W.F.	2/20/61	1/28/61	-	44.4	42.6	43.4	13.1	12.1	12.9	130	76	106	416	320	363[a]	432	360	398[a]
Current Mill Average:							43.4			12.9			111			358			395
Cumulative Mill Average:							43.8			12.6			108			365			399
Mill Factor, %							99.1			102.4			102.8			98.1			99.0
Mill Index, %							99.5			101.6			100.9			107.8			105.6

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188823	WF1S	2/15/61	1/28/61	2	46.0	42.2	43.7	14.1	13.0	13.6	126	85	107	320	272	304[a]	368	320	347[a]
188824	WF1S	2/15/61	1/29/61	2	43.6	41.2	42.3	13.9	12.9	13.4	120	78	106	352	264	317[a]	384	320	357[a]
188825	WF1S	2/15/61	2/ 3/61	2	45.2	43.6	44.4	15.0	13.7	14.3	128	81	110	416	312	350[a]	376	328	348[a]
188826	WF1S	2/15/61	2/ 6/61	2	43.0	42.0	42.4	13.9	12.5	13.0	120	71	106	328	272	292[a]	376	320	345[a]
188827	WF1S	2/15/61	2/12/61	2	44.2	42.6	43.6	13.6	12.9	13.1	138	98	117	384	320	344[a]	392	336	367[a]
188828	WF1S	2/15/61	2/13/61	2	44.0	42.8	43.4	14.8	13.7	14.1	138	91	111	368	248	307	400	328	355[a]
188877	WF1S	2/20/61	2/15/61	2	43.0	41.2	42.0	14.0	12.8	13.2	121	90	108	336	280	308[a]	392	304	346[a]
188878	WF1S	2/20/61	2/16/61	2	44.6	43.6	44.0	14.2	13.4	13.9	132	102	116	352	272	301	376	328	351[a]
Current Mill Average:							43.2			13.6			110			315			352
Cumulative Mill Average:							43.3			14.0			110			329			363
Mill Factor, %							99.8			97.1			100.0			95.7			97.0
Mill Index, %							99.1			107.1			100.0			94.9			94.1

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188617	WF1S	2/ 1/61	1/24/61	1	43.8	42.2	43.0	13.3	12.3	12.8	130	98	113	360	296	329[a]	424	328	394[a]
188618	WF1S	2/ 1/61	1/26/61	1	43.8	42.0	42.9	13.4	12.2	12.8	142	98	112	424	296	343[a]	448	360	399[a]
188763	WF1S	2/10/61	1/31/61	1	44.0	42.0	42.9	13.4	12.0	12.8	135	80	113	368	280	316	400	336	370[a]
188764	WF1S	2/10/61	2/ 2/61	1	43.8	42.2	42.8	13.4	12.2	12.8	131	96	114	352	248	315	448	320	384[a]
188810	WF1S	2/14/61	2/ 7/61	1	43.6	42.2	42.8	13.4	12.4	12.9	130	83	111	352	240	308	432	352	392[a]
188880	WF1S	2/20/61	2/14/61	1	43.8	42.0	42.8	13.2	12.0	12.8	132	96	114	320	248	278	528	352	397[a]
188881	WF1S	2/20/61	2/16/61	1	43.6	42.0	43.0	13.2	12.4	12.9	139	84	105	368	248	303	440	344	386[a]
Current Mill Average:							42.9			12.8			112			313			389
Cumulative Mill Average:							43.6			12.9			112			320			397
Mill Factor, %							98.4			99.2			100.0			97.8			98.0
Mill Index, %							98.4			100.8			101.8			94.3			104.0

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XIV

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188619	WF1S	2/ 1/61	1/16/61	2	45.0	43.6	44.2	13.3	12.8	13.0	131	102	115	384	256	313[a]	432	344	386[a]
188740	WF1S	2/ 9/61	1/ 6/61	2	44.0	43.2	43.5	13.3	12.6	12.9	121	85	108	392	296	338[a]	416	320	361[a]
188741	WF1S	2/ 9/61	1/21/61	2	43.8	42.0	43.1	13.0	12.3	12.7	123	86	105	384	288	342[a]	360	320	333[a]
188742	WF1S	2/ 9/61	1/22/61	2	44.0	42.4	43.0	12.5	11.2	12.0	121	98	108	368	312	342[a]	400	312	352[a]
188798	WF1S	2/13/61	1/29/61	2	43.0	42.0	42.5	12.8	11.5	12.2	129	81	108	400	320	365[a]	408	352	375[a]
188811	WF1S	2/14/61	2/ 3/61	2	43.0	41.6	42.3	13.0	12.0	12.5	138	101	119	384	304	321[a]	464	344	391[a]
188842	WF1S	2/16/61	2/ 5/61	2	44.8	42.2	43.7	14.0	12.9	13.3	129	85	109	336	288	307	392	296	351[a]
188879	WF1S	2/20/61	2/ 9/61	2	44.8	43.4	44.0	13.8	12.8	13.2	133	100	116	384	272	311[a]	400	328	365[a]
188921	WF1S	2/23/61	2/13/61	2	44.6	43.0	44.0	14.0	12.3	13.2	126	80	110	352	256	305[a]	360	320	341[a]
Current Mill Average:							43.4			12.8			111			327			362
Cumulative Mill Average:							43.6			13.1			110			317			365
Mill Factor, %							99.5			97.7			100.9			103.2			99.2
Mill Index, %							99.5			100.8			100.9			98.5			96.8

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.

No samples submitted.

TABLE XVI

MILL N -- 42-LB. LINERBOARD

188661	W.F.	2/ 8/61	2/ 1/61	-	44.0	42.0	43.3	13.1	12.3	12.8	140	108	124	384	288	325[a]	392	304	355[a]
188662	W.F.	2/ 8/61	2/ 2/61	-	44.4	43.4	43.9	12.8	12.0	12.2	128	94	112	400	272	342[a]	360	312	337[a]
188663	W.F.	2/ 8/61	2/ 3/61	-	43.8	42.0	42.9	13.8	13.0	13.3	134	90	115	400	272	340[a]	384	352	362[a]
188794	W.F.	2/13/61	2/ 8/61	-	43.8	42.0	42.6	13.0	12.2	12.7	138	96	118	384	280	329	384	328	350[a]
188795	W.F.	2/13/61	2/ 9/61	-	44.2	42.2	43.2	13.9	13.0	13.5	126	96	113	368	304	327[a]	448	312	377[a]
188796	W.F.	2/13/61	2/10/61	-	43.8	42.4	43.1	13.0	12.6	12.8	125	90	110	376	248	311[a]	360	312	333[a]
188875	W.F.	2/20/61	2/14/61	-	44.4	43.8	44.1	13.4	12.9	13.0	142	104	119	352	304	327[a]	424	352	384[a]
188876	W.F.	2/20/61	2/15/61	-	44.0	43.4	43.8	12.9	12.0	12.4	138	107	122	368	272	327[a]	392	328	357[a]
Current Mill Average:							43.4			12.8			117			328			357
Cumulative Mill Average:							43.8			12.6			113			322			357
Mill Factor, %							99.1			101.6			103.5			101.9			100.0
Mill Index, %							99.5			100.8			106.4			98.8			95.5

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XVII

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188736	W.F.	2/ 9/61	1/13/61	1	42.0	42.0	42.0	12.9	12.0	12.3	125	82	107	328	248	290[a]	360	312	335[a]
188737	W.F.	2/ 9/61	1/22/61	1	44.2	43.6	44.0	12.9	12.0	12.2	132	91	114	360	288	323	416	352	375[a]
188738	W.F.	2/ 9/61	1/18/61	1	44.0	43.0	43.6	13.1	12.1	12.7	127	82	108	360	280	313	384	336	367[a]
188739	W.F.	2/ 9/61	1/14/61	1	44.0	42.0	43.3	13.1	12.1	12.6	128	94	111	328	272	295	400	320	357[a]
188934	W.F.	2/24/61	2/ 2/61	1	43.8	42.4	43.0	12.5	11.8	12.2	123	85	110	328	240	288[a]	384	304	360[a]
188935	W.F.	2/24/61	2/ 4/61	1	44.6	42.6	43.5	13.1	11.8	12.5	138	92	113	320	240	285[a]	384	320	343[a]
188936	W.F.	2/24/61	2/ 5/61	1	43.0	41.4	42.2	13.3	12.7	13.0	124	90	108	376	256	335	360	312	335[a]
188937	W.F.	2/24/61	2/10/61	1	43.0	41.2	42.2	12.4	11.9	12.1	128	92	112	376	240	310[a]	384	312	351[a]
Current Mill Average:							43.0			12.5			110			305			353
Cumulative Mill Average:							43.5			12.9			108			321			365
Mill Factor, %							98.9			96.9			101.9			95.0			96.7
Mill Index, %							98.6			98.4			100.0			91.9			94.4

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

No samples submitted.

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
No samples submitted.																			

TABLE XX

MILL S -- 42-LB. LINERBOARD

188628	W.B.	2/ 3/61	1/24/61	-	43.8	42.0	42.9	12.2	11.4	11.8	121	85	106	376	312	337[a]	440	344	387[a]
188631	W.B.	2/ 6/61	1/26/61	-	44.0	42.4	43.3	12.1	11.0	11.7	131	102	113	384	296	347[a]	448	360	398[a]
188632	W.B.	2/ 6/61	1/29/61	-	44.0	41.2	42.5	12.0	11.2	11.6	125	92	107	400	272	348	448	336	373[a]
188633	W.B.	2/ 6/61	1/29/61	-	43.6	40.8	42.5	12.3	11.2	11.7	127	70	106	368	296	329	432	368	394[a]
188743	W.B.	2/ 9/61	1/30/61	-	44.2	42.0	43.3	12.9	12.1	12.6	127	81	105	384	328	357[a]	448	352	399[a]
188744	W.B.	2/ 9/61	2/ 2/61	-	45.2	42.0	43.7	12.8	11.9	12.2	133	94	114	432	336	371[a]	440	400	424[a]
188745	W.B.	2/ 9/61	2/ 2/61	-	44.0	41.8	43.2	12.5	11.2	12.0	130	86	112	464	304	365[a]	432	352	392[a]
188893	W.B.	2/21/61	2/10/61	-	44.0	42.0	42.8	12.7	11.5	12.0	127	80	107	432	280	351[a]	464	360	403[a]
188894	----	2/21/61	2/14/61	-	43.6	42.2	42.8	12.3	11.4	11.9	127	90	112	416	320	371	464	384	421[a]
Current Mill Average:							43.0			11.9			109			353			399
Cumulative Mill Average:							43.7			12.0			111			363			409
Mill Factor, %							98.4			99.2			98.2			97.2			97.6
Mill Index, %							98.6			93.7			99.1			106.3			106.7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXI

MILL T -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188797	WF1S	2/13/61	2/ 6/61	1	44.6	42.0	43.7	13.9	12.9	13.3	115	75	94	288	240	268[a]	384	312	341[a]
188812	WF1S	2/14/61	2/ 7/61	1	44.4	41.8	43.2	13.4	12.2	12.8	121	65	103	384	328	353	440	312	391[a]
188813	WF1S	2/14/61	2/ 8/61	1	44.6	42.0	43.2	13.1	12.0	12.6	119	75	98	376	304	339[a]	416	352	387[a]
188891	WF1S	2/21/61	2/13/61	2	45.0	43.2	44.1	13.0	12.1	12.7	124	80	104	400	336	369	464	320	405[a]
188873	WF1S	2/20/61	2/14/61	2	44.0	41.6	43.0	13.8	12.2	13.1	116	80	99	368	304	335[a]	440	352	389[a]
188920	WF1S	2/23/61	2/15/61	2	43.8	41.6	43.1	13.1	12.0	12.5	128	87	110	400	312	357[a]	464	384	409[a]
Current Mill Average:							43.4			12.8			102			337			387
Cumulative Mill Average:							43.6			12.9			107			359			400
Mill Factor, %							99.5			99.2			95.3			93.9			96.8
Mill Index, %							99.5			100.8			92.7			101.5			103.5

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

PART II: COMPARISON OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY WITH THOSE OBTAINED AT THE MILLS

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. Mill test conditions are shown in Table XXII, where it may be noted that the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the preconditioning and conditioning time periods varied considerably.

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of percentage differences between Institute and mill test results is given in Table XXIV for the current period and the two previous periods.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. In Table XXIII the over-all average difference between Institute and mill results is shown for each of these tests based on the current mill averages--i.e., based on the data for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the over-all average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

TABLE XXII

PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS

Mill Code	Preconditioning			Conditioning		
	Relative Humidity, %	Temperature, °F.	Time, hr.	Relative Humidity, %	Temperature, °F.	Time, hr.
A	38-80	62-84	0.5	50	73	24
B	50	73	48	50	73	3
C		None		50	73	24
D	50	73	24		None	
E		None		23-64	76-84	--
F		None		50	73	24
G	50	73	24	50	73	24
H		None		50	73	24
I	50-51	73	48	50	73	--
J	50	72	24		None	
K		None		55-58	72-74	--
L	50	72	120-168	50	70-72	120-168
M	No samples submitted.					
N	34-35	77-79	8	48-52	72-73	16
O	50	73	24	50	73	24
P	No samples submitted					
Q	No samples submitted					
S		None		43-45	71	48
T	50	73	24	50	73	24

TABLE XXIII

SUMMARY OF TEST RESULT COMPARISONS (Average Mill and Institute Results)

Mills[a]	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T
No. of Samples Compared	8	6	4	2	6	3	8	2	8	8	7	9	0	8	8	0	0	9	6
Basis Weight																			
Institute	43.8	43.2	43.7	43.2	42.8	43.0	43.7	44.1	43.4	43.2	42.9	43.4		43.4	43.0			43.0	43.4
Mill	43.4	42.8	44.1	42.9	42.2	43.0	43.3	43.8	42.9	43.2	42.5	43.2		43.0	43.2			42.7	42.7
Av. Diff.[b]	-0.4	-0.4	+0.4	-0.3	-0.6	0.0	-0.4	-0.3	-0.5	0.0	-0.4	-0.2		-0.4	+0.2			-0.3	-0.7
Max. Diff.[c]	-0.9	-0.8	+1.1	-0.4	-1.2	±0.2	-0.7	-0.5	-0.8	±0.6	-0.6	-1.4		-0.7	+0.6			-0.7	-1.2
Caliper																			
Institute	12.4	13.2	12.2	12.9	12.6	11.9	12.6	11.8	12.9	13.6	12.8	12.8		12.8	12.5			11.9	12.8
Mill	12.0	12.8	12.2	12.7	12.3	11.9	12.3	11.4	12.5	13.3	12.6	12.8		12.5	12.4			11.5	12.2
Av. Diff.[b]	-0.4	-0.4	0.0	-0.2	-0.3	0.0	-0.3	-0.4	-0.4	-0.3	-0.2	0.0		-0.3	-0.1			-0.4	-0.6
Max. Diff.[c]	-0.8	-0.9	+0.3	-0.2	-0.6	-0.4	-0.6	-0.4	-0.7	-0.5	-0.3	+0.7		-0.6	+0.2			-1.0	-0.6
Bursting Strength																			
Institute	112	105	115	101	114	118	110	110	111	110	112	111		117	110			109	102
Mill	109	110	106	112	113	116	110	114	109	105	107	107		116	113			111	104
Av. Diff.[b]	-3	+5	-9	+11	- 1	-2	0	+4	-2	-5	-5	-4		-1	+3			+2	+2
Max. Diff.[c]	-6	+10	-16	+14	-10	-3	+4	+9	-10	-12	-8	-9		+6	+4			+5	+5
Tearing Strength, in																			
Institute	285	317	340	335	308	317	307	324	358	315	313	327		328	305			353	337
Mill	283	273	343	314	256	337	283	333	367	310	311	336		285	324			314	—
Av. Diff.[b]	-2	-44	+3	-21	-52	+20	-24	+9	+9	-5	-2	+9		-43	+19			-39	—
Max. Diff.[c]	-20	-75	+23	-28	-100	+41	-39	+39	-25	-33	+12	+24		-62	+37			-52	—
Tearing Strength, across																			
Institute	348	358	355	373	348	341	365	380	395	352	389	362		357	353			399	387
Mill	359	358	387	377	348	390	374	411	397	373	389	393		331	398			384	—
Av. Diff.[b]	+11	0	+32	+4	0	+49	+9	+31	+2	+21	0	+31		-26	+45			-15	—
Max. Diff.[c]	+41	+23	+45	+10	-49	+52	+24	+74	+39	+49	-28	+63		-48	+64			-36	—

[a] Comparison based on averages involved only those samples on which mill test data were submitted.

[b] Average difference is the difference between the Institute mill average and the mill average based on mill test data.

[c] Maximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXIV

COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
Average Difference, Per Cent

Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, across
A	Current	-0.9	-3	-3	-0.7	+3
	166th	-1	-3	0	-2	+3
	165th	-2	-2	+3	+1	0
B	Current	-0.9	-3	+5	-14	0
	166th	-0.5	-3	+6	-9	+1
	165th	0	-3	+6	-8	0
C	Current	+0.9	0	-8	+0.9	+9
	166th	-0.5	-0.8	-2	-9	+4
	165th	-0.5	-0.8	-2	-3	+0.5
D	Current	-0.7	-2	+11	-6	+1
	166th	-0.7	-3	+8	-10	-13
	165th	-0.9	-2	+6	-8	-7
E	Current	-1	-2	-0.9	-17	0
	166th	--	--	--	--	--
	165th	-2	-2	-2	-9	+3
F	Current	0	0	-2	+6	+14
	166th	-0.5	-0.8	-7	+7	+9
	165th	-2	-2	-2	-4	-5
G	Current	-0.9	-2	0	-8	+2
	166th	-1	-2	-3	-11	-3
	165th	-2	-2	+0.9	+0.6	+4
H	Current	-0.7	-3	+4	+3	+8
	166th	0	-3	-2	-4	+1
	165th	-2	-2	-2	+1	+5
I	Current	-1	-3	-2	+3	+0.5
	166th	-2	-2	-0.9	-5	-0.3
	165th	-2	-3	+2	+0.3	-1
J	Current	0	-2	-5	-2	+6
	166th	-0.9	-2	-3	-6	+3
	165th	-0.9	-2	-2	-13	-3
K	Current	-0.9	-2	-4	-0.6	0
	166th	-1	-2	-3	+2	-0.8
	165th	-2	-2	-4	-1	-3
L	Current	-0.5	0	-4	+3	+9
	166th	-1	-0.8	+0.9	-4	-0.3
	165th	-2	+2	-2	-10	+4
M	Current	--	---	--	--	--
	166th	--	--	--	--	--
	165th	--	--	--	--	--
N	Current	-0.9	-2	-0.9	-13	-7
	166th	-0.9	-2	+0.9	-12	-3
	165th	-0.9	-4	+2	-13	-8
O	Current	+0.5	-0.8	+3	+6	+13
	166th	0	-0.8	+2	+6	+9
	165th	-0.7	+2	+0.9	+4	+8
P	Current	--	--	--	--	--
	166th	--	--	--	--	--
	165th	-2	-4	+3	-2	-0.3
Q	Current	--	--	--	--	--
	166th	--	--	--	--	--
	165th	--	--	--	--	--
S	Current	-0.7	-3	+2	-11	-4
	166th	-1	-3	+0.9	-9	-9
	165th	-1	-3	+3	-10	-2
T	Current	-2	-5	+2	--	--
	166th	-1	-6	+4	--	--
	165th	-2	-7	+4	--	--

It may be noted in Table XXIV that for the current period the largest average percentage difference between the average basis weight results of the Institute and those of a given mill on corresponding samples was two per cent. By comparison, the largest average percentage difference noted for the previous two periods was also two per cent. Further, it may be noted that the average basis weight results for Mills F and J were the same as those for the Institute, whereas the average basis weight results for Mills C and O were higher than the corresponding results for the Institute, and the results for the other mills were lower. In general, agreement between Institute and mill basis weight results was good.

The maximum variation in caliper for the current period was five per cent. This was lower than the maximum variation of seven per cent for the previous two periods. Compared with the Institute's results, the average test results for Mills C, F, and L were the same, and the results for the other mills were lower. Agreement was very good for the majority of comparisons of Institute and mill caliper results. Only the variation for Mill T appeared to be excessive.

It may be noted in Table XXIV that the bursting strength results exhibited a maximum variation of eleven per cent for the current period. The maximum variation for the two proceding periods was eight per cent. The average bursting strength results for Mills B, D, H, O, S, and T were higher than those for the Institute, the average result for Mill G was the same as that for the Institute, and the average results for the other mills were lower. Agreement between Institute and mill results was very good with the exception of the variations noted for Mills C and D.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills C, F, H, I, L, and O were higher than those for the Institute, and the average results for the other mills were lower. The maximum variation for the current period was seventeen per cent which was slightly higher than the maximum variation of thirteen per cent associated with the two preceding periods. Agreement between the Institute and mill results was generally good. However, the variations for Mills B, E, N, and S appeared to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills B, E, and K were the same as those for the Institute, the average results for Mills N and S were lower, and the average results for the other mills were higher. The maximum variation for the current period was fourteen per cent, which was slightly higher than the maximum variation of thirteen per cent for the two preceding periods. As in the case of the machine direction results, agreement between Institute and mill results was generally good with the exception of the variations for Mills F and O which appeared to be excessive.

The comparisons of Institute and mill data for individual sample lots are given alphabetically in Tables XXV to XLIII for the various mills. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

The reader's attention is directed to page 3 of this report where the comparison of Institute and mill test data is summarized to show the number of mills (and the percentage of all mills which this number

represents) whose average test results for the month of February fall within designated percentages from the average test results obtained at the Institute.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188626	W.F.	1/17/61	1	43.2	43.0	-0.2	12.2	12.0	-0.2	113	109	-4	259	267	+ 8	347[a]	350	+ 3
188627	W.F.	1/20/61	1	44.0	43.9	-0.1	12.3	11.9	-0.4	112	109	-3	278[a]	285	+ 7	348[a]	355	+ 7
188630	W.F.	1/23/61	1	44.1	43.6	-0.5	12.5	11.9	-0.6	113	107	-6	291	294	+ 3	348[a]	370	+22
188762	W.F.	1/28/61	1	44.6	43.8	-0.8	12.2	11.8	-0.4	115	109	-6	300	290	-10	343[a]	358	+15
188799	W.F.	1/31/61	1	44.4	43.9	-0.5	12.9	12.1	-0.8	108	110	+2	291	279	-12	352[a]	355	+ 3
188841	W.F.	2/ 3/61	1	43.1	42.8	-0.3	12.5	12.1	-0.4	110	110	0	284[a]	264	-20	336[a]	348	+12
188885	W.F.	2/ 8/61	1	44.0	43.4	-0.6	12.4	12.0	-0.4	112	108	-4	291[a]	295	+ 4	367[a]	358	- 9
188886	W.F.	2/15/61	1	43.3	42.4	-0.9	12.3	11.9	-0.4	111	110	-1	283[a]	289	+ 6	340[a]	381	+41
Current Mill Average:				43.8	43.4	-0.4	12.4	12.0	-0.4	112	109	-3	285	283	- 2	348	359	+11

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188806	----	1/ 1/61	1	43.5	43.3	-0.2	13.5	13.1	-0.4	115	117	+ 2	309	270	-39	386[a]	367	-19
188807	----	1/14/61	1	43.1	42.5	-0.6	13.1	12.5	-0.6	102	108	+ 6	311	288	-23	345[a]	368	+23
188808	----	1/21/61	1	43.4	42.9	-0.5	13.6	12.7	-0.9	110	113	+ 3	319	266	-53	347[a]	348	+ 1
188809	----	1/23/61	1	42.9	42.1	-0.8	13.2	13.0	-0.2	96	106	+10	341	266	-75	360[a]	351	- 9
188889	----	2/ 2/61	1	43.2	42.7	-0.5	13.1	12.8	-0.3	104	106	+ 2	314[a]	278	-36	359[a]	370	+11
188890	----	2/ 5/61	1	43.3	43.2	-0.1	12.8	12.5	-0.3	104	112	+ 8	310	271	-39	350[a]	342	- 8
Current Mill Average:				43.2	42.8	-0.4	13.2	12.8	-0.4	105	110	+ 5	317	273	-44	358	358	0

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188620	W.F.	1/17/61	-	43.7	43.9	+0.2	12.2	12.2	0.0	111	106	- 5	351[a]	340	-11	356[a]	373	+17
188621	W.F.	1/17/61	-	43.9	43.7	-0.2	12.4	12.2	-0.2	111	103	- 8	335[a]	335	0	338[a]	383	+45
188837	W.F.	1/31/61	-	43.8	44.3	+0.5	12.2	12.5	+0.3	114	108	- 6	349[a]	349	0	372[a]	412	+40
188838	W.F.	2/ 5/61	-	43.2	44.3	+1.1	12.0	12.1	+0.1	125	109	-16	325[a]	348	+23	353[a]	381	+28
Current Mill Average:				43.7	44.1	+0.4	12.2	12.2	0.0	115	106	- 9	340	343	+ 3	355	387	+32

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

188629	S.F.	1/17/61	7	43.2	43.0	-0.2	13.0	12.8	-0.2	99	106	+ 7	345[a]	317	-28	365[a]	375	+10
188892	S.F.	1/31/61	7	43.1	42.7	-0.4	12.9	12.7	-0.2	103	117	+14	324	311	-13	380[a]	378	- 2
Current Mill Average:				43.2	42.9	-0.3	12.9	12.7	-0.2	101	112	+11	335	314	-21	373	377	+ 4

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188800	W.F.	1/ 4/61	1	42.8	42.5	-0.3	13.0	12.4	-0.6	114	116	+ 2	283[a]	278	- 5	343[a]	368	+25
188801	W.F.	1/ 6/61	1	42.9	42.3	-0.6	12.9	12.4	-0.5	117	113	- 4	275[a]	247	- 28	341[a]	347	+ 6
188802	W.F.	1/ 9/61	1	42.4	42.0	-0.4	12.3	12.1	-0.2	111	112	+ 1	315[a]	255	- 60	323[a]	345	+22
188803	W.F.	1/12/61	1	42.2	42.2	0.0	12.3	12.2	-0.1	106	114	+ 8	321[a]	258	- 63	318[a]	342	+24
188804	W.F.	1/17/61	1	43.0	42.0	-1.0	12.1	12.1	0.0	119	109	-10	307[a]	251	- 56	368[a]	342	-26
188805	W.F.	1/21/61	1	43.2	42.0	-1.2	12.9	12.4	-0.5	115	112	- 3	346[a]	246	-100	394[a]	345	-49
Current Mill Average:				42.8	42.2	-0.6	12.6	12.3	-0.3	114	113	- 1	308	256	- 52	348	348	0

TABLE XXX

MILL F -- 42-LB. LINERBOARD

188624	W.F.	1/22/61	2	42.8	42.9	+0.1	11.8	11.8	0.0	119	116	-3	296	337	+41	348[a]	398	+50
188625	W.F.	1/23/61	2	42.4	42.6	+0.2	11.7	11.9	+0.2	118	116	-2	329[a]	323	- 6	325[a]	369	+44
188874	W.F.	2/12/61	2	43.7	43.5	-0.2	12.3	11.9	-0.4	116	115	-1	325[a]	352	+27	350[a]	402	+52
Current Mill Average:				43.0	43.0	0.0	11.9	11.9	0.0	118	116	-2	317	337	+20	341	390	+49

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188765	W.F.	1/18/61	2	44.2	43.5	-0.7	12.8	12.2	-0.6	114	112	-2	321	289	-32	382[a]	392	+10
188766	W.F.	1/18/61	2	44.1	43.6	-0.5	12.2	12.5	+0.3	102	106	+4	296	276	-20	357[a]	367	+10
188767	W.F.	1/24/61	2	43.9	43.6	-0.3	12.3	12.0	-0.3	113	112	-1	323[a]	289	-34	369[a]	373	+ 4
188768	W.F.	1/24/61	2	44.1	43.8	-0.3	12.5	12.1	-0.4	116	116	0	330	291	-39	395[a]	377	-18
188769	W.F.	1/18/61[b]	2	44.0	43.7	-0.3	12.3	12.0	-0.3	113	111	-2	309	288	-21	377[a]	389	+12
188770	W.F.	1/18/61[b]	2	43.6	43.1	-0.5	12.8	12.4	-0.4	105	106	+1	303	277	-26	349[a]	373	+24
188771	W.F.	1/31/61	2	42.7	42.6	-0.1	13.0	12.7	-0.3	106	106	0	287	273	-14	349[a]	365	+16
188772	W.F.	1/31/61	2	42.9	42.7	-0.2	13.0	12.7	-0.3	110	107	-3	289	281	- 8	345[a]	356	+11
Current Mill Average:				43.7	43.3	-0.4	12.6	12.3	-0.3	110	110	0	307	283	-24	365	374	+ 9

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

[b]This date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as January 20, 1961.

Note: All "current mill average data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188938	W.F.	2/ 8/61	3	44.1	43.6	-0.5	11.7	11.3	-0.4	105	114	+9	349[a]	328	-21	417[a]	406	-11
188939	W.F.	2/12/61	3	44.0	43.9	-0.1	11.8	11.4	-0.4	114	113	-1	298	337	+39	342[a]	416	+74
Current Mill Average:				44.1	43.8	-0.3	11.8	11.4	-0.4	110	114	+4	324	333	+ 9	380	411	+31

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188634	W.F.	1/21/61	-	43.3	43.0	-0.3	13.3	13.0	-0.3	111	106	- 5	377[a]	376	- 1	401[a]	440	+39
188635	W.F.	1/21/61	-	42.8	42.3	-0.5	13.2	12.9	-0.3	108	107	- 1	362[a]	375	+13	414[a]	404	-10
188639	W.F.	1/21/61	-	43.6	43.1	-0.5	13.3	13.0	-0.3	112	114	+ 2	357[a]	381	+24	375[a]	399	+24
188640	W.F.	1/21/61	-	43.8	43.0	-0.8	13.3	13.0	-0.3	114	109	- 5	354[a]	376	+22	388[a]	380	- 8
188641	W.F.	1/23/61	-	43.0	42.5	-0.5	12.7	12.0	-0.7	102	107	+ 5	343[a]	359	+16	394[a]	380	-14
188882	W.F.	1/27/61	-	43.5	42.9	-0.6	12.6	12.2	-0.4	113	119	+ 6	368[a]	343	-25	412[a]	399	-13
188883	W.F.	1/27/61	-	43.9	43.4	-0.5	12.2	11.6	-0.6	120	110	-10	341	365	+24	376[a]	384	+ 8
188884	W.F.	1/28/61	-	43.4	42.8	-0.6	12.9	12.4	-0.5	106	104	- 2	363[a]	364	+ 1	398[a]	392	- 6
Current Mill Average:				43.4	42.9	-0.5	12.9	12.5	-0.4	111	109	- 2	358	367	+ 9	395	397	+ 2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188823	WFIS	1/28/61	2	43.7	43.8	+0.1	13.6	13.2	-0.4	107	110	+ 3	304[a]	321	+17	347[a]	383	+36
188824	WFIS	1/29/61	2	42.3	42.2	-0.1	13.4	12.9	-0.5	106	104	- 2	317[a]	284	-33	357[a]	346	-11
188825	WFIS	2/ 3/61	2	44.4	44.0	-0.4	14.3	13.8	-0.5	110	105	- 5	350[a]	334	-16	348[a]	397	+49
188826	WFIS	2/ 6/61	2	42.4	43.0	+0.6	13.0	13.0	0.0	106	105	- 1	292[a]	314	+22	345[a]	380	+35
188827	WFIS	2/12/61	2	43.6	43.0	-0.6	13.1	13.0	-0.1	117	105	-12	344[a]	314	-30	367[a]	380	+13
188828	WFIS	2/13/61	2	43.4	43.7	+0.3	14.1	14.0	-0.1	111	104	- 7	307	326	+19	355[a]	384	+29
188877	WFIS	2/15/61	2	42.0	42.5	+0.5	13.2	13.0	-0.2	108	101	- 7	308[a]	288	-20	346[a]	339	- 7
188878	WFIS	2/16/61	2	44.0	43.7	-0.3	13.9	13.5	-0.4	116	108	- 8	301	296	- 5	351[a]	376	+25
Current Mill Average:				43.2	43.2	0.0	13.6	13.3	-0.3	110	105	- 5	315	310	- 5	352	373	+21

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188617	WFIS	1/24/61	1	43.0	42.7	-0.3	12.8	12.7	-0.1	113	105	-8	329[a]	331	+ 2	394[a]	420	+26
188618	WFIS	1/26/61	1	42.9	42.3	-0.6	12.8	12.7	-0.1	112	106	-6	343[a]	335	- 8	399[a]	416	+17
188763	WFIS	1/31/61	1	42.9	42.4	-0.5	12.8	12.6	-0.2	113	107	-6	316	305	-11	370[a]	377	+ 7
188764	WFIS	2/ 2/61	1	42.8	42.4	-0.4	12.8	12.6	-0.2	114	106	-8	315	305	-10	384[a]	383	- 1
188810	WFIS	2/ 7/61	1	42.8	42.8	0.0	12.9	12.7	-0.2	111	110	-1	308	310	+ 2	392[a]	397	+ 5
188880	WFIS	2/14/61	1	42.8	42.5	-0.3	12.8	12.5	-0.3	114	108	-6	278	290	+12	397[a]	375	-22
188881	WFIS	2/16/61	1	43.0	42.4	-0.6	12.9	12.6	-0.3	105	111	+6	303	303	0	386[a]	358	-28
Current Mill Average:				42.9	42.5	-0.4	12.8	12.6	-0.2	112	107	-5	313	311	- 2	389	389	0

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXVI

MILL L — 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188619	WFIS	1/16/61	2	44.2	42.8	-1.4	13.0	12.8	-0.2	115	106	-9	313[a]	312	- 1	386[a]	398	+12
188740	WFIS	1/ 6/61	2	43.5	43.6	+0.1	12.9	12.8	-0.1	108	101	-7	338[a]	342	+ 4	361[a]	404	+43
188741	WFIS	1/21/61	2	43.1	43.4	+0.3	12.7	12.8	+0.1	105	102	-3	342[a]	358	+16	333[a]	390	+57
188742	WFIS	1/22/61	2	43.0	43.2	+0.2	12.0	12.7	+0.7	108	106	-2	342[a]	352	+10	352[a]	378	+26
188798	WFIS	1/29/61	2	42.5	42.7	+0.2	12.2	12.7	+0.5	108	106	-2	365[a]	370	+ 5	375[a]	438	+63
188811	WFIS	2/ 3/61	2	42.3	42.5	+0.2	12.5	12.4	-0.1	119	110	-9	321[a]	339	+18	391[a]	394	+ 3
188842	WFIS	2/ 5/61	2	43.7	43.0	-0.7	13.3	12.9	-0.4	109	110	+1	307	300	- 7	351[a]	373	+22
188879	WFIS	2/ 9/61	2	44.0	43.7	-0.3	13.2	13.0	-0.2	116	115	-1	311[a]	335	+24	365[a]	374	+ 9
188921	WFIS	2/13/61	2	44.0	43.5	-0.5	13.2	13.1	-0.1	110	110	0	305[a]	317	+12	341[a]	385	+44
Current Mill Average:				43.4	43.2	-0.2	12.8	12.8	0.0	111	107	-4	327	336	+ 9	362	393	+31

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff
No samples submitted																		

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

188661	W.F.	2/ 1/61	-	43.3	42.6	-0.7	12.8	12.4	-0.4	124	122	-2	325[a]	289	-36	355[a]	328	-27
188662	W.F.	2/ 2/61	-	43.9	43.6	-0.3	12.2	12.1	-0.1	112	110	-2	342[a]	280	-62	337[a]	348	+11
188663	W.F.	2/ 3/61	-	42.9	42.5	-0.4	13.3	13.0	-0.3	115	112	-3	340[a]	281	-59	362[a]	335	-27
188794	W.F.	2/ 8/61	-	42.6	42.4	-0.2	12.7	12.1	-0.6	118	117	-1	329	287	-42	350[a]	321	-29
188795	W.F.	2/ 9/61	-	43.2	42.8	-0.4	13.5	13.1	-0.4	113	111	-2	327[a]	297	-30	377[a]	343	-34
188796	W.F.	2/10/61	-	43.1	42.9	-0.2	12.8	12.5	-0.3	110	109	-1	311[a]	275	-36	333[a]	312	-21
188875	W.F.	2/14/61	-	44.1	44.0	-0.1	13.0	13.0	0.0	119	125	+6	327[a]	288	-39	384[a]	336	-48
188876	W.F.	2/15/61	-	43.8	43.1	-0.7	12.4	12.2	-0.2	122	122	0	327[a]	281	-46	357[a]	325	-32
Current Mill Average:				43.4	43.0	-0.4	12.8	12.5	-0.3	117	116	-1	328	285	-43	357	331	-26

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188736	W.F.	1/13/61	1	42.0	42.5	+0.5	12.3	12.2	-0.1	107	109	+2	290[a]	300	+10	335[a]	374	+39
188737	W.F.	1/22/61	1	44.0	43.7	-0.3	12.2	12.2	0.0	114	117	+3	323	342	+19	375[a]	422	+47
188738	W.F.	1/18/61	1	43.6	43.8	+0.2	12.7	12.6	-0.1	108	110	+2	313	332	+19	367[a]	397	+30
188739	W.F.	1/14/61	1	43.3	43.2	-0.1	12.6	12.5	-0.1	111	111	0	295	312	+17	357[a]	385	+28
188934	W.F.	2/ 2/61	1	43.0	43.3	+0.3	12.2	12.2	0.0	110	114	+4	288[a]	317	+29	360[a]	403	+43
188935	W.F.	2/ 4/61	1	43.5	43.9	+0.4	12.5	12.4	-0.1	113	115	+2	285[a]	322	+37	343[a]	407	+64
188936	W.F.	2/ 5/61	1	42.2	42.4	+0.2	13.0	13.1	+0.1	108	110	+2	335	322	-13	335[a]	380	+45
188937	W.F.	2/10/61	1	42.2	42.8	+0.6	12.1	12.3	+0.2	112	114	+2	310[a]	344	+34	351[a]	413	+62
Current Mill Average:				43.0	43.2	+0.2	12.5	12.4	-0.1	110	113	+3	305	324	+19	353	398	+45

TABLE XL

MILL P -- 42-LB. LINERBOARD

No samples submitted

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XLI

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted																		

TABLE XLII

MILL S -- 42-LB. LINERBOARD

188628	W.B.	1/24/61	-	42.9	42.9	0.0	11.8	11.4	-0.4	106	106	0	337[a]	319	-18	387[a]	392	+ 5
188631	W.B.	1/26/61	-	43.3	42.9	-0.4	11.7	11.2	-0.5	113	116	+3	347[a]	299	-48	398[a]	379	-19
188632	W.B.	1/29/61	-	42.5	42.2	-0.3	11.6	11.3	-0.3	107	108	+1	348	299	-49	373[a]	372	- 1
188633	W.B.	1/29/61	-	42.5	42.5	0.0	11.7	11.4	-0.3	106	109	+3	329[a]	307	-22	394[a]	365	-29
188743	W.B.	1/30/61	-	43.3	42.7	-0.6	12.6	11.6	-1.0	105	107	+2	357[a]	325	-32	399[a]	407	+ 8
188744	W.B.	2/ 2/61	-	43.7	43.1	-0.6	12.2	11.8	-0.4	114	119	+5	371[a]	319	-52	424[a]	388	-36
188745	W.B.	2/ 2/61	-	43.2	42.5	-0.7	12.0	11.6	-0.4	112	114	+2	365[a]	325	-40	392[a]	380	-12
188893	W.B.	2/10/61	-	42.8	42.6	-0.2	12.0	11.7	-0.3	107	108	+1	351[a]	307	-44	403[a]	375	-28
188894	----	2/14/61	-	42.8	43.1	+0.3	11.9	11.6	-0.3	112	110	-2	371	323	-48	421[a]	401	-20
Current Mill Average:				43.0	42.7	-0.3	11.9	11.5	-0.4	109	111	+2	353	314	-39	399	384	-15

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--FEBRUARY 1 THROUGH FEBRUARY 28, 1961 (continued)

TABLE XLIII

MILL T -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188797	WFIS	2/ 6/61	1	43.7	43.0	-0.7	13.3	12.7	-0.6	94	92	-2	268[a]			341[a]		
188812	WFIS	2/ 7/61	1	43.2	42.0	-1.2	12.8	12.2	-0.6	103	106	+3	353			391[a]		
188813	WFIS	2/ 8/61	1	43.2	42.5	-0.7	12.6	12.0	-0.6	98	103	+5	339[a]			387[a]		
188891	WFIS	2/13/61	2	44.1	43.3	-0.8	12.7	12.1	-0.6	104	108	+4	369			405[a]		
188873	WFIS	2/14/61	2	43.0	42.7	-0.3	13.1	12.5	-0.6	99	103	+4	335[a]			389[a]		
188920	WFIS	2/15/61	2	43.1	42.7	-0.4	12.5	12.1	-0.4	110	115	+5	357[a]			409[a]		
Current Mill Average:				43.4	42.7	-0.7	12.8	12.2	-0.6	102	104	+2	337			387		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

THE INSTITUTE OF PAPER CHEMISTRY

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